

## Question #138

**Key: E**

The sample mean is 1 and therefore  $mq = 1$ .

For the smoothed empirical 33<sup>rd</sup> percentile,  $(1/3)(5 + 1) = 2$  and the second smallest sample item is 0. For the 33<sup>rd</sup> percentile of the binomial distribution to be 0, the probability at zero must exceed 0.33. So,  $(1 - q)^m > 0.33$  and then  $(1 - m^{-1})^m > 0.33$ . Trial and error gives  $m = 6$  as the smallest value that produces this result.